PATENT ABSTRACTS OF JAPAN

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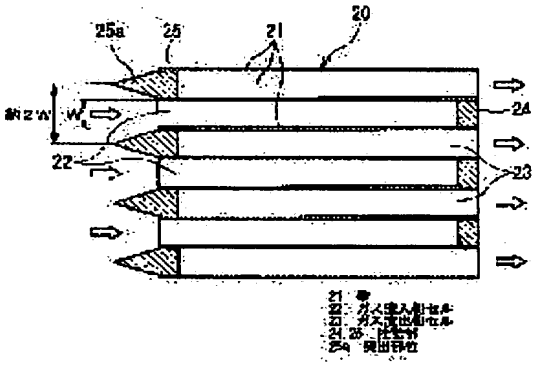
(54) EXHAUST EMISSION PURIFIER

(57)Abstract:
PROBLEM TO BE SOLVED: To hardly deposit a particulate matter PM included in exhaust gas on the foremost face side in the flow direction and to prevent reduction in a passage area on the foremost face side even if the particulate matter is deposited.
SOLUTION: In a plug part 25 formed by plugging the front end side of a gas outflow side cell 23 around a gas inflow side cell 22 of a DPF(diesel particulate filter), a projection part 25a protrudes from the end face of the gas outflow side cell 23 while tapering off toward the upstream side. In this way, even if the particulate matter is deposited in the projection part 25a in the plug part 25, reduction in an area beyond the passage area of the gas inflow side cell 22 on the its downstream side is hardly caused, so that a sudden increase of a pressure loss due to deposit of the particulate matter in the DPF 20 can be prevented. Exhaust gas can be smoothly let flow into the gas inflow side cell 22 by straightening action by the projection part 25a in the plug part 25, and consequently, a tendency to deposit the PM on the foremost face side of the gas inflow side cell 2 can be corrected.



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CLAIMS

[Claim(s)]
[Claim 1] ****** which has two or more paths which it is surrounded by the flow direction of exhaust gas with a grid-like wall, and a back end and tip side is ****(ed) by turns in the exhaust emission control device using porous ceramics, and are made into a gas inflow and effluence-of-gas side, and **** the tip side of the path by the side of said effluence of gas is an exhaust emission control device characterized by forming at least the lobe which projects in the configuration which becomes thin toward the upstream from the end face of the path by the side of said effluence of gas.
[Claim 2] Said lobe is an exhaust emission control device according to claim 1 characterized by forming in the wire extension from which plurality differs.
[Claim 3] Said wall and said lobe are an exhaust emission control device according to claim 1 or 2 characterized by supporting an oxidation catalyst.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the exhaust emission control device which carries out uptake of the particle matter (it is described as "PM" below Particulate Matter;) contained in exhaust gas.
[0002]
[Description of the Prior Art] Conventionally, uptake of the PM contained in exhaust gas is once carried out using porous ceramics called cordierite (2MgO, 2aluminum2 O3, and 5SiO2), and the exhaust emission control device which is made to purify PM deposited by after [this] heater playback, catalytic reaction, etc., and aims at recovery is known. It consists of Wall flow type filter structure of having a porosity thin wall, as this concrete thing, and there are some which were applied to the diesel particulate filter (it is only described as "DPF" below Diesel Particulate Filter;) with which a Diesel engine's flueway was equipped.
[0003]
[Problem(s) to be Solved by the Invention] By the way, in present DPF, when superfluous PM is discharged in exhaust gas, there is a phenomenon of being easy to deposit PM on the forefront side side of the flow direction of the exhaust gas of DPF. For this reason, when the path area by the side of the forefront side of the path surrounded with the grid-like wall called the cel of the flow direction of the exhaust gas of DPF was extracted by deposition of PM, the pressure loss (pressure loss) increased rapidly and there was fault of causing the fall of an engine output, in the Diesel engine connected to the upstream of DPF.
[0004] Then, this invention was made in order to solve this fault, and it is offering the technical problem the exhaust emission control device from which the path area by the side of a forefront side is not extracted even if it is hard to deposit PM contained in exhaust gas and it accumulates on the forefront side side of a flow direction.
[0005]
[Means for Solving the Problem] According to the exhaust emission control device of claim 1, at least the lobe which projects in the configuration which becomes thin toward the upstream from the end face of an effluence-of-gas side cel is formed in ****** which **** the tip side of the effluence-of-gas side cel around a gas inflow side cel (path). Since it is hard to become narrower than the path area of the gas inflow side cel of the downstream by this even if PM (particle matter) accumulates at least on the lobe of ******, the rapid increment in the pressure loss by deposition of PM is prevented. Moreover, since exhaust gas becomes that it is easy to flow in a gas inflow side cel smoothly, the inclination which PM deposits on the forefront side side of the gas inflow side cel 22 is corrected.
[0006] In the exhaust emission control device of claim 2, at least the lobe is formed in the wire extension from which plurality differs, since the tip distance can extend, the rectification effectiveness increases, and the effectiveness that deposition of PM by the side of the forefront side close attendants of a gas inflow side cel can be lessened more is acquired.
[0007] In the exhaust emission control device of claim 3, the oxidation catalyst is supported by at least the wall and the lobe, PM deposited using the catalytic reaction is purified good, and recovery is achieved.
[0008]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained based on an example.
[0009] Drawing 1 is the outline block diagram showing wearing to the Diesel engine of DPF with a catalyst

(Diesel Particulate Filter) with which the exhaust emission control device concerning one example of the gestalt of operation of this invention was applied.

[0010] In drawing 1 , 10 is a Diesel engine, it passes through the inhalation-of-air path 11, mixed compression is carried out with the fuel injected from the injector (illustration abbreviation) corresponding to each gas column of Diesel engine 10, and the air inhaled from the air cleaner (illustration abbreviation) of the upstream burns to predetermined timing. And after the exhaust gas after combustion passes DPF20 with which was held in the container and it was equipped in the middle of flueway 12, it is discharged in atmospheric air.

[0011] Next, the structure of DPF20 is explained with reference to drawing 2 and drawing 3 . The perspective view showing the appearance as which drawing 2 regarded DPF20 from the exhaust gas inflow side here, and drawing 3 are the expanded sectional views along the flow direction of the exhaust gas of DPF20 of drawing 2 R> 2.

[0012] As shown in drawing 2 and drawing 3 , DPF20 is the so-called monolithic catalyst converter, and is formed in the shape of an approximate circle column in the integral construction which makes support cordierite (Cordierite) as porous ceramics with which the active ingredient with a catalysis was supported.

[0013] This DPF20 consists of Wall flow type filter structure of having ****** 25 which ****** the tip of two or more gas inflow side cels (path) 22 surrounded by the flow direction of exhaust gas with the grid-like porosity thin wall (it is only hereafter described as a "wall") 21, and these walls 21 and the effluence-of-gas side cel 23, and the ****** 24 which ****** the back end of the gas inflow side cel 22 and the effluence-of-gas side cel 23.

[0014] Here, ****** 24 which ****** the back end of the gas inflow side cel 22 of DPF20 is only for preventing effluence of gas. On the other hand, 25a is further formed in ****** 25 which ****** the tip of the effluence-of-gas side cel 23 of DPF20, and prevents a gas inflow at least for the lobe. At least this lobe is projected in the configuration to which 25a becomes thinner than ****** 25 toward the upstream from the end face of the effluence-of-gas side cel 23.

[0015] Thereby, to the width of face W of the wall 21 of the gas inflow side cel 22 of DPF20, the width of face for a point of 25a is set to about 2 W, and at least a lobe becomes the same with having extended opening area. Therefore, even if it compares and PM deposits at least the lobe of ****** 25 on 25a, it can be made hard to become narrower than the path area of the gas inflow side cel 22 of the downstream. For this reason, it can prevent that the pressure loss by deposition of PM of DPF20 increases rapidly.

[0016] Moreover, the rectification effectiveness of the flow of exhaust gas that at least the lobe of ****** 25 lessens deposition of PM in near the forefront side side (entrance side) of the gas inflow side cel 22 from 25a is also expectable with above-mentioned structure. That is, compared with the case to the gas inflow side cel 22 of exhaust gas where the tip of the effluence-of-gas side cel 23 is ******(ed) evenly, it is effective in losing the stagnation by the side of the forefront side close attendants of the gas inflow side cel 22 in the case of an inflow. Therefore, also when PM more superfluous than a Diesel engine is discharged, exhaust gas becomes that it is easy to flow in the gas inflow side cel 22 smoothly. For this reason, the inclination which PM deposits on the side near ****** 25 of the effluence-of-gas side cel 23 (i.e., the forefront side of the gas inflow side cel 22) is correctable.

[0017] Thus, the exhaust emission control device of this example is DPF (diesel particulate filter)20 which used porous ceramics. It has two or more gas inflow side cels (path) 22 which it is surrounded by the flow direction of exhaust gas with the grid-like wall 21, and a back end and tip side is ****(ed) by ****** 24 and 25 by turns, and are made into a gas inflow and effluence-of-gas side, and the effluence-of-gas side cel 23. At least the lobe which projects in the configuration to which ****** 25 which **** the tip side of the effluence-of-gas side cel 23 becomes thin toward the upstream from the end face of the effluence-of-gas side cel 23 forms 25a. Moreover, 25a supports an oxidation catalyst at least for the wall 21 and lobe of DPF20.

[0018] That is, 25a is formed in ****** 25 which **** the tip side of the effluence-of-gas side cel 23 around the gas inflow side cel 22 at least for the lobe which projects in the configuration which becomes thin toward the upstream from the end face of the effluence-of-gas side cel 23. Since it is hard to become narrower than the path area of the gas inflow side cel 22 of the downstream by this even if PM deposits at least the lobe of ****** 25 on 25a, the rapid increment in the pressure loss by deposition of PM of DPF20 can be prevented. Moreover, since exhaust gas becomes being easy to flow in the gas inflow side cel 22 by the rectification by 25a smoothly at least as for the lobe of ****** 25, the inclination which PM deposits on the forefront side side of the gas

inflow side cel 22 is correctable. And PM which DPF20 deposited using the catalytic reaction of the oxidation catalyst with which at least the wall 21 and the lobe were supported by 25a will be purified good, and recovery will be achieved.

[0019] Next, at least the lobe of ****** 25 of drawing 3 is explained with reference to DPF20' of drawing 4 about the modification of 25a. In addition, about what consists of the same above-mentioned configuration or same above-mentioned considerable part as an example, the same sign and the same notation are attached among drawing, and the detailed explanation is omitted.

[0020] At least the lobe of ****** 25 by the side of the tip of the effluence-of-gas side cel 23 of DPF20 shown in drawing 3 is formed at 25a with the dimension with the same wire extension from the end face of the effluence-of-gas side cel 23 to the upstream. On the other hand, the tip side of the effluence-of-gas side cel 23 is **** suggestion ******** at ****** 26 and 27 in which at least the lobe in which the wire extension from the end face of the effluence-of-gas side cel 23 to the upstream differs from X and Y formed 26a and 27a in DPF20' shown in drawing 4 .

[0021] Thereby, in DPF20' shown in drawing 4 , at least the lobe of ****** 27 by which at least the lobe of ****** 26 of the effluence-of-gas side cel 23 adjoins 26a can be extended from DPF20 which shows the distance between tips with 27a to drawing 3 . For this reason, it can prevent that the pressure loss by deposition of PM by the side of the forefront side of the gas inflow side cel 22 of DPF20' increases rapidly. Moreover, in DPF20', the rectification effectiveness of the flow of exhaust gas that at least the lobe of ****** 26 and 27 lessens deposition of PM from 26a and 27a to the forefront side close-attendants side of the gas inflow side cel 22 increases, and the inclination which PM deposits on 26 or about 27 ****** of the effluence-of-gas side cel 23 can be corrected.

[0022] Thus, the exhaust emission control device of this modification is DPF20' which used porous ceramics. It has two or more gas inflow side cels (path) 22 which it is surrounded by the flow direction of exhaust gas with the grid-like wall 21, and a back end and tip side is ****(ed) by ****** 24, 26, and 27 by turns, and are made into a gas inflow and effluence-of-gas side, and the effluence-of-gas side cel 23. At least the lobe which projects in the configuration to which ****** 26 and 27 which **** the tip side of the effluence-of-gas side cel 23 becomes thin toward the upstream from the end face of the effluence-of-gas side cel 23 forms 26a and 27a. Moreover, at least these lobes form 26a and 27a by two different wire extensions (plurality) X and Y. And 26a and 27a support an oxidation catalyst at least for the wall 21 and lobe of DPF20'.

[0023] That is, 26a and 27a are formed in ****** 26 and 27 which **** the tip side of the effluence-of-gas side cel 23 around the gas inflow side cel 22 at least for the lobe which projects in the configuration which becomes thin toward the upstream from the end face of the effluence-of-gas side cel 23. Since it is hard to become narrower than the path area of the gas inflow side cel 22 of the downstream by this even if PM deposits at least the lobe of ****** 26 and 27 on 26a and 27a, the rapid increment in the pressure loss by deposition of PM of DPF20' can be prevented. Moreover, since exhaust gas becomes being easy to flow in the gas inflow side cel 22 by the rectification by 26a and 27a smoothly at least as for the lobe of ****** 26 and 27, the inclination which PM deposits on the forefront side side of the gas inflow side cel 22 is correctable. And since tip distance has extended at least the lobe of ****** 26 and 27 by 26a and 27a, the rectification effectiveness increases, and deposition of PM by the side of the forefront side close attendants of the gas inflow side cel 22 can be lessened more. Furthermore, PM which DPF20' deposited using the catalytic reaction of the oxidation catalyst with which at least the wall 21 and the lobe were supported by 25a will be purified good, and recovery will be achieved.

[0024] By the way, although the tip of 25a, 26a, and 27a sharpens and at least the lobe of ****** 25, 26, and 27 is formed in the above-mentioned example and the modification, when carrying out this invention, it may not be limited to this, and the tip of 25a, 26a, and 27a should be just as thinner as a lobe than effluence-of-gas cel 23 part, and you may be the tip configuration which has a radius of circle. Moreover, although at least the lobe of ****** 25, 26, and 27 is doubled with the wall 21 of the shape of a grid of the effluence-of-gas side cel 23 and is formed in the square drill configuration by 25a, 26a, and 27a, a tip side can also be formed in the shape of a cone etc.

[0025] And although it projects to all ****** 25, 26, and 27 of the effluence-of-gas side cel 23 and Parts 25a, 26a, and 27a are formed in the above-mentioned example and the modification, when carrying out this invention, it is not limited to this and the effectiveness can be alternatively acquired also one jump and by

forming suitably. Moreover, at least a lobe does not necessarily have to make keen the protrusion configuration of 25a, 26a, and 27a.

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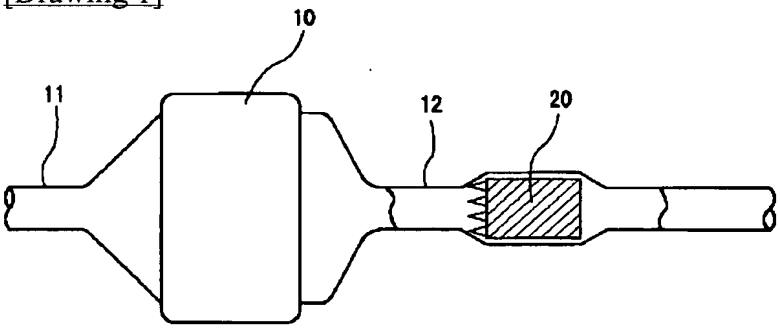
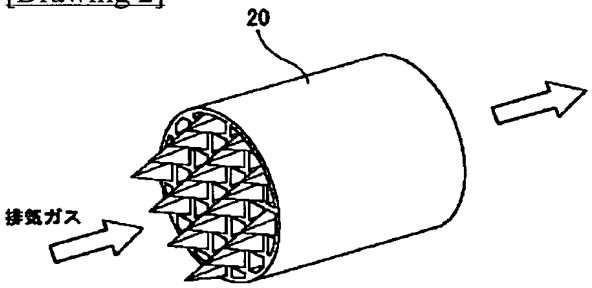
DRAWINGS

[Drawing 1]

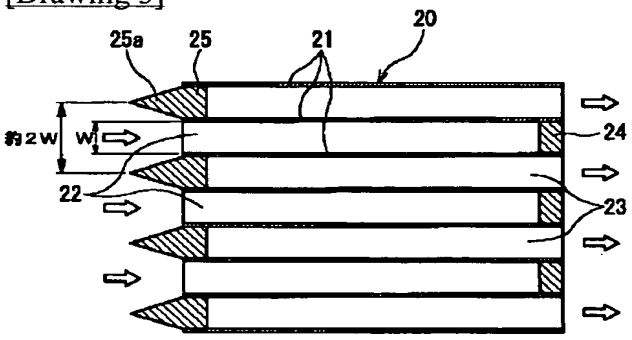


20 DPF(排気浄化装置)

[Drawing 2]

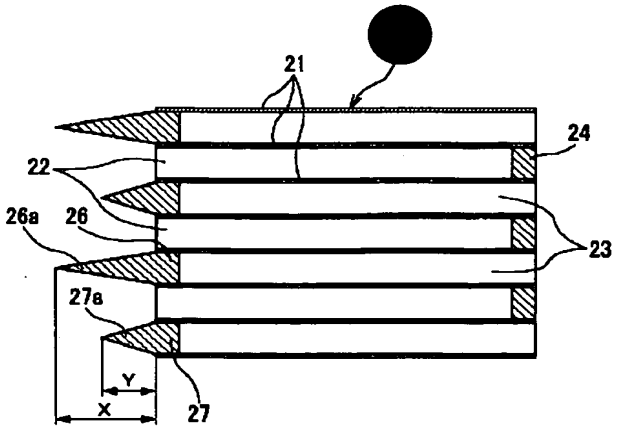


[Drawing 3]



21 壁
22 ガス流入側セル
23 ガス流出側セル
24, 25 栓詰部
25a 突出部位

[Drawing 4]



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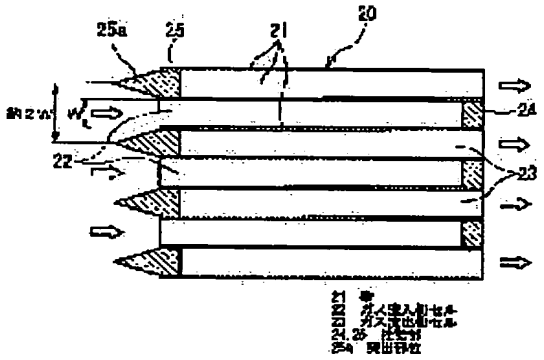

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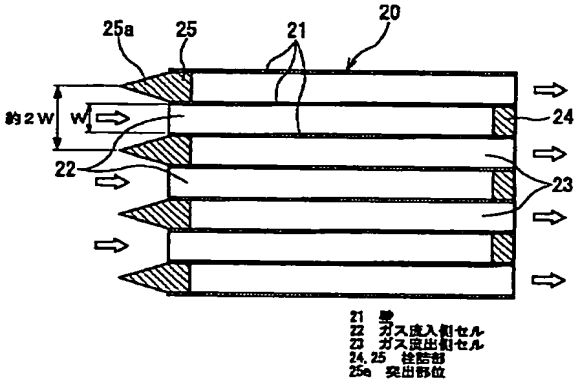
最終頁に続く

(54)【発明の名称】　排気浄化装置

(57)【要約】
【課題】　排気ガス中に含まれるＰＭ（微粒子物質）が流れ方向の最前面側に堆積し難く、また、堆積しても最前面側の通路面積が絞られないこと。
【解決手段】　ＤＰＦ（ディーゼル・パティキュレート・フィルタ）のガス流入側セル２２の周囲のガス流出側セル２３の先端側を栓詰する栓詰部２５には、ガス流出側セル２３の端面より上流側に向かって細くなる形状にて突出する突出部位２５ａが形成されている。これにより、栓詰部２５の突出部位２５ａにＰＭが堆積したとしても、その下流側のガス流入側セル２２の通路面積より狭くなり難いため、ＤＰＦ２０のＰＭの堆積による圧損の急激な増加を防止することができる。また、栓詰部２５の突出部位２５ａによる整流作用により排気ガスがガス流入側セル２２内にスムースに流入され易くなるため、ガス流入側セル２２の最前面側にＰＭが堆積する傾向を是正することができる。



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【特許請求の範囲】

【請求項１】　多孔質セラミックスを用いた排気浄化装置において、

排気ガスの流れ方向に格子状の壁にて囲まれ、後端側及び先端側を交互に栓詰しガス流入側及びガス流出側とする複数の通路を有し、

前記ガス流出側の通路の先端側を栓詰する栓詰部は、前記ガス流出側の通路の端面より上流側に向かって細くなる形状にて突出する突出部位を形成することを特徴とする排気浄化装置。

【請求項２】　前記突出部位は、複数の異なる突出長さにて形成することを特徴とする請求項１に記載の排気浄化装置。

【請求項３】　前記壁及び前記突出部位は、酸化触媒を担持することを特徴とする請求項１または請求項２に記載の排気浄化装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、排気ガス中に含まれる微粒子物質（Particulate Matter；以下、『ＰＭ』と記す）を捕集する排気浄化装置に関するものである。

【０００２】

【従来の技術】従来、コージェライト（$2MgO \cdot 2Al_2O_3 \cdot 5SiO_2$）という多孔質セラミックスを用い、排気ガス中に含まれるＰＭを一旦捕集し、こののちヒータ再生や触媒反応等によって堆積したＰＭを浄化させ回復を図る排気浄化装置が知られている。この具体的なものとしては、多孔質薄壁を有するウォールフロータイプのフィルタ構造からなり、ディーゼル機関の排気通路に装着されたディーゼル・パティキュレート・フィルタ(Diesel Particulate Filter；以下、単に『ＤＰＦ』と記す）に応用したものがある。

【０００３】

【発明が解決しようとする課題】ところで、現状のＤＰＦにおいては、排気ガス中に過剰なＰＭが排出されたときには、ＤＰＦの排気ガスの流れ方向の最前面側にＰＭが堆積し易いという現象がある。このため、ＤＰＦの排気ガスの流れ方向のセルと称する格子状の壁にて囲まれた通路の最前面側における通路面積が、ＰＭの堆積によって絞られると圧損（圧力損失）が急激に増加し、ＤＰＦの上流側に接続されたディーゼル機関等では機関出力の低下を招くという不具合があった。

【０００４】そこで、この発明はかかる不具合を解決するためになされたもので、排気ガス中に含まれるＰＭが流れ方向の最前面側に堆積し難く、また、堆積しても最前面側の通路面積が絞られることのない排気浄化装置の提供を課題としている。

【０００５】

【課題を解決するための手段】請求項１の排気浄化装置によれば、ガス流入側セル（通路）の周囲のガス流出側

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セルの先端側を栓詰する栓詰部には、ガス流出側セルの端面より上流側に向かって細くなる形状にて突出する突出部位が形成されている。これにより、栓詰部の突出部位にＰＭ（微粒子物質）が堆積したとしても、その下流側のガス流入側セルの通路面積より狭くなり難いため、ＰＭの堆積による圧損の急激な増加が防止される。また、排気ガスがガス流入側セル内にスムースに流入され易くなるため、ガス流入側セル２２の最前面側にＰＭが堆積する傾向が是正される。

【０００６】請求項２の排気浄化装置では、突出部位が複数の異なる突出長さにて形成されており、その先端距離が広げられるため整流効果が増大され、ガス流入側セルの最前面側近傍へのＰＭの堆積をより少なくできるという効果が得られる。

【０００７】請求項３の排気浄化装置では、壁及び突出部位に酸化触媒が担持されており、その触媒反応を利用して堆積したＰＭが良好に浄化され回復が図られる。

【０００８】

【発明の実施の形態】以下、本発明の実施の形態を実施例に基づいて説明する。

【０００９】図１は本発明の実施の形態の一実施例にかかる排気浄化装置が適用された触媒付ＤＰＦ(Diesel Particulate Filter)のディーゼル機関への装着を示す概略構成図である。

【００１０】図１において、１０はディーゼル機関であり、上流側のエアクリーナ（図示略）から吸入された空気は吸気通路１１を通過し、ディーゼル機関１０の各気筒に対応するインジェクタ（図示略）から噴射された燃料と混合圧縮され所定タイミングで燃焼される。そして、燃焼後の排気ガスは排気通路１２途中に容器内に収容され装着されたＤＰＦ２０を通過したのち大気中に排出される。

【００１１】次に、ＤＰＦ２０の構造について、図２及び図３を参照して説明する。ここで、図２はＤＰＦ２０を排気ガス流入側から見た外観を示す斜視図、図３は図２のＤＰＦ２０の排気ガスの流れ方向に沿う拡大断面図である。

【００１２】図２及び図３に示すように、ＤＰＦ２０は所謂、モノリス触媒コンバータであり、触媒作用のある活性成分が担持された多孔質セラミックスとしてのコージェライト（Cordierite）を担体とする一体構造にて略円柱状に形成されている。

【００１３】このＤＰＦ２０は、排気ガスの流れ方向に格子状の多孔質薄壁（以下、単に『壁』と記す）２１と、これら壁２１にて囲まれた複数のガス流入側セル（通路）２２及びガス流出側セル２３と、ガス流入側セル２２の後端を目封じする栓詰部２４及びガス流出側セル２３の先端を目封じする栓詰部２５とを有するウォールフロータイプのフィルタ構造からなる。

【００１４】ここで、ＤＰＦ２０のガス流入側セル２２

の後端を目封じする栓詰部２４は、単に、ガス流出を阻止するためのものである。これに対して、ＤＰＦ２０のガス流出側セル２３の先端を目封じしてガス流入を阻止する栓詰部２５には、更に、突出部位２５ａが形成されている。この突出部位２５ａは、ガス流出側セル２３の端面より上流側に向かって栓詰部２５よりも細くなる形状にて突出されている。

【００１５】これにより、ＤＰＦ２０のガス流入側セル２２の壁２１の幅Ｗに対して、突出部位２５ａの先端部分の幅が約２Ｗとなり、開口面積を広げたのと同様になる。したがって、喩え、栓詰部２５の突出部位２５ａにＰＭが堆積したとしても、その下流側のガス流入側セル２２の通路面積より狭くなり難くできる。このため、ＤＰＦ２０のＰＭの堆積による圧損が急激に増加することを防止することができる。

【００１６】また、上述の構造により、栓詰部２５の突出部位２５ａからガス流入側セル２２の最前面側（入口側）近傍へのＰＭの堆積を少なくする排気ガスの流れの整流効果も期待できる。つまり、排気ガスのガス流入側セル２２への流入の際、ガス流出側セル２３の先端を平坦に目封じした場合に比べ、ガス流入側セル２２の最前面側近傍での澱みをなくす効果がある。したがって、ディーゼル機関より過剰なＰＭが排出されたときにも、排気ガスはガス流入側セル２２内にスムースに流入され易くなる。このため、ガス流出側セル２３の栓詰部２５の近傍、即ち、ガス流入側セル２２の最前面側にＰＭが堆積する傾向を是正することができる。

【００１７】このように、本実施例の排気浄化装置は、多孔質セラミックスを用いたＤＰＦ（ディーゼル・パティキュレート・フィルタ）２０であって、排気ガスの流れ方向に格子状の壁２１にて囲まれ、後端側及び先端側を交互に栓詰部２４，２５にて栓詰しガス流入側及びガス流出側とする複数のガス流入側セル（通路）２２及びガス流出側セル２３を有し、ガス流出側セル２３の先端側を栓詰する栓詰部２５は、ガス流出側セル２３の端面より上流側に向かって細くなる形状にて突出する突出部位２５ａを形成するものである。また、ＤＰＦ２０の壁２１及び突出部位２５ａが酸化触媒を担持するものである。

【００１８】つまり、ガス流入側セル２２の周囲のガス流出側セル２３の先端側を栓詰する栓詰部２５には、ガス流出側セル２３の端面より上流側に向かって細くなる形状にて突出する突出部位２５ａが形成されている。これにより、栓詰部２５の突出部位２５ａにＰＭが堆積したとしても、その下流側のガス流入側セル２２の通路面積より狭くなり難いため、ＤＰＦ２０のＰＭの堆積による圧損の急激な増加を防止することができる。また、栓詰部２５の突出部位２５ａによる整流作用により排気ガスがガス流入側セル２２内にスムースに流入され易くなるため、ガス流入側セル２２の最前面側にＰＭが堆積する傾向を是正することができる。そして、ＤＰＦ２０は壁２１及び突出部位２５ａに担持された酸化触媒の触媒反応を利用して、堆積したＰＭが良好に浄化され回復が図られることとなる。

【００１９】次に、図３の栓詰部２５の突出部位２５ａの変形例について、図４のＤＰＦ２０′を参照して説明する。なお、図中、上述の実施例と同様の構成または相当部分からなるものについては同一符号及び同一記号を付し、その詳細な説明を省略する。

【００２０】図３に示すＤＰＦ２０のガス流出側セル２３の先端側の栓詰部２５の突出部位２５ａでは、ガス流出側セル２３の端面から上流側への突出長さが同じ寸法にて形成されている。これに対して、図４に示すＤＰＦ２０′では、ガス流出側セル２３の端面から上流側への突出長さがＸ，Ｙと異なる突出部位２６ａ，２７ａを形成した栓詰部２６，２７にてガス流出側セル２３の先端側が目封じされている。

【００２１】これにより、図４に示すＤＰＦ２０′では、ガス流出側セル２３の栓詰部２６の突出部位２６ａと隣接する栓詰部２７の突出部位２７ａとの先端間の距離を、図３に示すＤＰＦ２０より広げることができる。このため、ＤＰＦ２０′のガス流入側セル２２の最前面側へのＰＭの堆積による圧損が急激に増加することを防止することができる。また、ＤＰＦ２０′では、栓詰部２６，２７の突出部位２６ａ，２７ａからガス流入側セル２２の最前面側近傍へのＰＭの堆積を少なくする排気ガスの流れの整流効果が増大され、ガス流出側セル２３の栓詰部２６，２７近傍にＰＭが堆積する傾向を是正することができる。

【００２２】このように、本変形例の排気浄化装置は、多孔質セラミックスを用いたＤＰＦ２０′であって、排気ガスの流れ方向に格子状の壁２１にて囲まれ、後端側及び先端側を交互に栓詰部２４，２６，２７にて栓詰しガス流入側及びガス流出側とする複数のガス流入側セル（通路）２２及びガス流出側セル２３を有し、ガス流出側セル２３の先端側を栓詰する栓詰部２６，２７は、ガス流出側セル２３の端面より上流側に向かって細くなる形状にて突出する突出部位２６ａ，２７ａを形成するものである。また、これら突出部位２６ａ，２７ａを２つ（複数）の異なる突出長さＸ，Ｙにて形成するものである。そして、ＤＰＦ２０′の壁２１及び突出部位２６ａ，２７ａが酸化触媒を担持するものである。

【００２３】つまり、ガス流入側セル２２の周囲のガス流出側セル２３の先端側を栓詰する栓詰部２６，２７には、ガス流出側セル２３の端面より上流側に向かって細くなる形状にて突出する突出部位２６ａ，２７ａが形成されている。これにより、栓詰部２６，２７の突出部位２６ａ，２７ａにＰＭが堆積したとしても、その下流側のガス流入側セル２２の通路面積より狭くなり難いため、ＤＰＦ２０′のＰＭの堆積による圧損の急激な増加

を防止することができる。また、栓詰部２６，２７の突出部位２６ａ，２７ａによる整流作用により排気ガスがガス流入側セル２２内にスムースに流入され易くなるため、ガス流入側セル２２の最前面側にＰＭが堆積する傾向を是正することができる。そして、栓詰部２６，２７の突出部位２６ａ，２７ａでは先端距離が広げられているため整流効果が増大され、ガス流入側セル２２の最前面側近傍へのＰＭの堆積をより少なくすることができる。更に、ＤＰＦ２０′は壁２１及び突出部位２５ａに担持された酸化触媒の触媒反応を利用して、堆積したＰＭが良好に浄化され回復が図られることとなる。

【００２４】ところで、上記実施例及び変形例では、栓詰部２５，２６，２７の突出部位２５ａ，２６ａ，２７ａの先端が尖って形成されているが、本発明を実施する場合には、これに限定されるものではなく、突出部位２５ａ，２６ａ，２７ａの先端がガス流出セル２３部分よりも細ければよく、丸みを有する先端形状であってもよい。また、栓詰部２５，２６，２７の突出部位２５ａ，２６ａ，２７ａでは、ガス流出側セル２３の格子状の壁２１に合わせ四角錐形状にて形成されているが、先端側を円錐状等に形成することもできる。

【００２５】そして、上記実施例及び変形例では、ガス流出側セル２３の栓詰部２５，２６，２７の全てに対して突出部位２５ａ，２６ａ，２７ａが形成されている＊が、本発明を実施する場合には、これに限定されるものではなく、１つ飛びや選択的に適宜、形成することによっても、その効果を得ることができる。また、突出部位２５ａ，２６ａ，２７ａの突出形状を必ずしも鋭角的にする必要もない。

【図面の簡単な説明】

【図１】　図１は本発明の実施の形態の一実施例にかかる排気浄化装置及びその製造方法が適用された触媒付ＤＰＦのディーゼル機関への装着を示す概略構成図である。

【図２】　図２は図１のＤＰＦの外観を示す斜視図である。

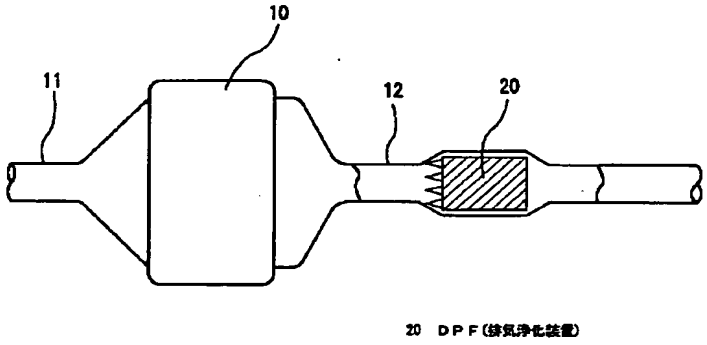
【図３】　図３は図２のＤＰＦの排気ガスの流れ方向に沿う断面図である。

【図４】　図４は図３のＤＰＦの栓詰部における突出部位の変形例を示す断面図である。

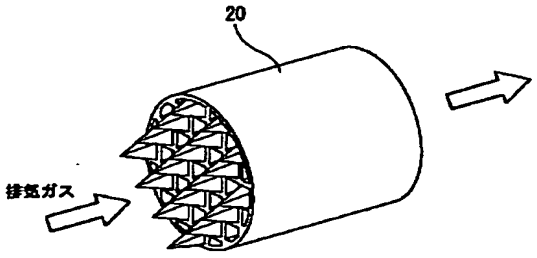
【符号の説明】

２０　　（触媒付）ＤＰＦ（排気浄化装置）
２１　　壁
２２　　ガス流入側セル
２３　　ガス流出側セル
２４，２５　栓詰部
２５ａ　　突出部位

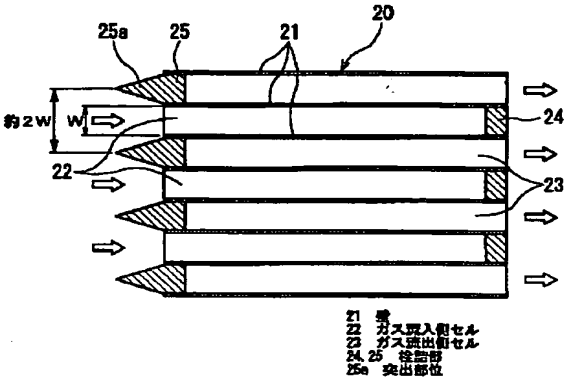
【図１】



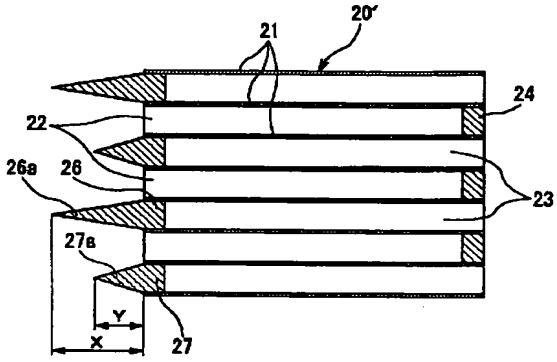
【図２】



【図３】



【図４】



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